

CHESKY RECORDS



DR. CHESKY,
SENSATIONAL &
FANTASTIC
AND
SIMPLY
AMAZING
BINAURAL
SOUND
SHOW!

Made
to work on
headphones and
speakers like you've
never heard
before!

JD355



DR. CHESKY





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What does good sound sound like? For some that's a hard thing to pin down, but not for David Chesky. Since he and his brother Norman started Chesky Records in 1989 the goal was always the same: make recordings that sound like you are there, at the session.

They never recorded just the band, Chesky always captured the sound of the musicians playing in great acoustic settings. And now, starting with the Binaural+ sessions, the Cheskys have taken that approach to the next level. With a great set of headphones or speakers Binaural+ recordings will transport you back to the session!

When the musicians first arrived at these sessions they “played” the room. They’d sing or play a few notes on their instrument, and listen for their sound coming back to them. With this Binaural+ recording you’ll hear what they heard as they performed: the music surrounded by the naturally occurring reverberation of the recording venue. Binaural+ recordings never use artificial reverberation, there’s no need for it because no matter how advanced, it can never sound as realistic or enveloping as the actual sound of the recording venue.

The sound of Dr. Chesky’s Binaural+ recordings is fundamentally different than every studio recording you’ve heard, because the “best” studios don’t have any sound at all. They are designed to be acoustically “dead,” so all of the “ambience” on their recordings has to be *artificially* created with analog or digital devices, and added in the mix. For the Dr. Chesky sessions our binaural mic, which we affectionately named Lars, “hears” everything: the musicians *and* the recording venue. Listen, and you’ll be there!

Lars is a bit of a standoffish guy, so he never likes to get very close to the musicians—the distance varies from session to session—but Lars is much further away from the performers than the typical close-mic-ed sound you have heard on virtually every studio *and* concert recording in your collection. Right, they fake the “concert sound” on most concert recordings,

and add reverberation in the studio. One other point, Lars is the sole mic used for all Dr. Chesky recordings, there were no separate mics used to capture the sounds of individual vocalists or instruments. Lars hears them all! For a more complete description of how Lars works read Professor Edgar Choueiri's *Binaural Audio: A Semi-Technical Introduction* in these liner notes.

Another key difference to the sound of Binaural+ recordings is they are free of the processing that's part of virtually every commercial recording on the market, so there's no dynamic range compression, overdone equalization, artificial reverberation, or over-mic-ing on a Binaural+ album. Starting with *Explorations in Space and Time*, recorded in late 2010, David Chesky and engineer Nicholas Prout took advantage of the enhanced realism afforded by binaural, and they have continued to refine and perfect their recording techniques. The first series of Dr. Chesky sessions were recorded at the Hirsch Center (the former St. Elias Church) in Greenpoint, Brooklyn. The magnificent 130 year old building has a great vibe, and the musicians all loved recording there. The High Victorian Gothic cathedral's plastered walls and ornate wood trimmings yielded ravishing acoustics, which were an intrinsic element of the sound of the Dr. Chesky recordings. We have everything from high-energy electric grooves from the Brooklyn Funk Band and the Widgets to the Manhattan Chamber Ensemble's performance of Mozart's *Divertimento in D Major*, and Amber Rubath's intimate folk music. Playing to Lars excited the musicians, and they came to see him as a stand-in for the people who would eventually hear these recordings.

The Chesky crew next went to the Church of St. Paul the Apostle in New York City to record Bach's Organ Toccata, and use the Church's mighty organ's lowest notes to test your speakers' and headphones' deep bass limits. The world-class organ was built in 1965 by the M.P. Moller Company, and restored in 2000. It has 4 manuals, 82 ranks, 78 stops, and 4965 pipes. Chesky also recorded the Choir of the Church of the Blessed Sacrament singing Bach's *Jesu, Joy of Man* and Mozart's *Ave verum* with the organ, and you should be able to hear the voices filling that huge space.

Inspired by the 4th & 5th century early Christian basilicas in Ravenna, Italy, the Church is 284 feet long, 121 feet wide, and 114 feet to the highest point of the towers, which are 38 feet square. The acoustics of this 127 year old building are breathtakingly beautiful, and we've captured them in all their glory on *Dr. Chesky's Sensational, Fantastic, and Simply Amazing Binaural Sound Show!*

Chesky also recorded Sakoon, a classical Arabic music ensemble there, and the spatial depth of the band's sound is remarkable. Listen for the tactile, palpable quality to the sound of their

hand percussion instruments. We had a swinging jazz quartet, with flute, and a blistering rock-fusion trio on hand to turn up the heat. The sound of the drumsticks that open the drum and flute improvisation will put you inside the church's vast acoustic space. The small- and large-scale dynamic shadings of the drum will be revealed on first-class headphones and speakers. There are test tracks that demonstrate bona-fide soundstage depth, and to top off the disc we give Lars a "haircut!"

Listening over headphones Binaural+'s 360 degree sonic immersion is a giant step closer to a virtual reality experience. David Chesky describes it this way, "We need to establish and understand that binaural is not a gimmick with sounds popping out on the sides all the time, it provides a live concert perspective, and that's it."

Important Notice!

Please be aware the Dr. Chesky recordings have a more lifelike soft-to-loud dynamic range than most of the music you already own. That's why the Binaural+ recordings' average volume level will be lower than other recordings. Please raise your volume control to a higher than normal level to access the full impact of *Dr. Chesky's Sensational, Fantastic, and Simply Amazing Binaural Sound Show!*

The Binaural+ Series of recordings are made for an audience of one, you! Enjoy!

—Steve Guttenberg





PART 1: THE MUSIC

01. Storms Are On the Ocean *Amber Rubarth* 3:34
02. Back Home Again in Indiana *Wycliffe Gordon & Friends* 4:54
03. Phrases *White, Sherman, & Haddad* 2:39
04. Pamafunk *The Brooklyn Funk Band* 4:04
05. Sami Bayyati *Sukoon* 6:03
06. Bach Toccata and Fugue *Gregory D'Agostino* 3:30
07. Westside Blues *Westside Jazz Quartet* 3:50
08. Bach Suite no.2 for unaccompanied cello: Sarabande;
Suite no. 1 for unaccompanied cello: Prelude *Dave Eggar* 3:00
09. Drum Solo *Todd Turkisher* 1:07
10. Binoceros *The Widgets* 3:27



11. Mozart Divertemento in D Mov 1 *The Manhattan Chamber Ensemble* 4:35
12. Rags el-hawanim *Sukoon* 4:05
13. Crazy Kids *Armand Hirsch Trio* 3:32
14. Bach Jesu Joy of Man's Desiring *Choir of the Church of the Blessed Sacrament* 3:00
15. Mozart Ave verum *Choir of the Church of the Blessed Sacrament* 3:12
16. Dancing Flute & Drum *Anne Drummond & Dr. Chesky* 3:55
17. This Little Light of Mine *The West New York Spiritual Choir* 2:44
18. Tranquility *White, Sherman, & Haddad* 4:29



PART 2: THE TESTS

19. One meter microphone test 0:26
20. Right channel ID test 0:34
21. Left channel ID test 0:33
22. Electric bass guitar scale 1:10
See Chart 1: Electric Bass Frequencies
23. Acoustic bass scale 0:25
See Chart 2: Acoustic Bass Frequencies
24. Organ pedal scale 4:37
See Chart 3: Organ Bass Frequencies
25. Edgar the Barber 0:32
26. Dr. Chesky's shave 0:47



CHART 1: ELECTRIC BASS FREQUENCIES

Note	Frequency (Hz)
C3	130.81
B2	123.47
A2	110.00
G2	98.00
F2	87.31
E2	82.41
D2	73.42
C2	65.41
B1	61.74
A1	55.00
G1	49.00
F1	43.65
E1	41.20
D1	36.70
C1	32.70
B0	30.87

* "Middle C" is C4

CHART 2: ACOUSTIC BASS FREQUENCIES

Note	Frequency (Hz)
C3	130.81
B2	123.47
A2	110.00
G2	98.00
F2	87.31
E2	82.41
D2	73.42
C2	65.41
B1	61.74
A1	55.00
G1	49.00
F1	43.65
E1	41.20
F0	21.83
E0	20.60
D0	18.35
C0	16.35

* "Middle C" is C4

CHART 3: ORGAN BASS FREQUENCIES

Note	Frequency (Hz)
C2	65.41
B1	61.74
A ^b ₁ /B ^b ₁	58.27
A1	55.00
G ^b ₁ /A ^b ₁	51.91
G1	49.00
F ^b ₁ /G ^b ₁	46.25
F1	43.65
E1	41.20
D ^b ₁ /E ^b ₁	38.89
D1	36.70
C ^b ₁ /D ^b ₁	34.65
C1	32.70
B0	30.87
A ^b ₀ /B ^b ₀	29.14
A0	27.50
G ^b ₀ /A ^b ₀	25.96
G0	24.50
F ^b ₀ /G ^b ₀	23.12
F0	21.83
E0	20.60
D ^b ₀ /E ^b ₀	19.45
D0	18.35
C ^b ₀ /D ^b ₀	17.32
C0	16.35

* "Middle C" is C4



BINAURAL AUDIO: A SEMI-TECHNICAL INTRODUCTION

Despite his portrait on the cover of this album, which hints more at a lineage of spooked flying circus aviators, Dr. Chesky can trace his venerable audio genealogy 132 years back to Clément Ader.

Ader, a colorful French engineer, is best known for having invented, thirteen years before the celebrated Wright Brothers' powered flight, a quirky propeller-driven machine with bat-like wings that reportedly managed the feat of flying about eight inches off the ground. Fortunately, for both aviators and audiophiles, Ader did not restrict his zany ingenuity to aviation. In 1881, he invented a telephonic system of stereo transmission, theatrically called the *Théâtrophone* which allowed privileged listeners, like Victor Hugo (and, later, Marcel Proust who became a paying subscriber) donning a pair of headphones-like speakers over their ears, in the comfort of their Parisian homes, to hear an almost-3D, albeit grainy, sound image of opera and theatre performances transmitted live from pairs of microphones on a stage miles away.

This seminal technique was picked up decades later by audio engineers who realized that a significant improvement to the spatial fidelity of headphones-based sound reproduction can be made if the microphones used to pick up the sound, were implanted in the ears of a dummy head. This allows a listener who hears the same left and right dummy head signals played back, through headphones, in the respective ears, to have essentially the same audio perspective as that of the dummy head, thus insuring that the brain of the listener would receive the proper 3D cues needed to perceive a 3D sound image—very much like what happens when one views a stereoscopic image with 3D glasses. This technique was quickly termed “dummy head stereophony” or, perhaps less pejoratively, “binaural audio.”

Binaural audio has had a checkered history. Attempts to have late-20th-century audiophiles—a notorious breed of monumental loudspeaker fetishists and wife torturers—adapt to wearing diminutive transducers daintily on their ears did not take root, and binaural audio, despite its demonstrated superior realism in spatial reproduction of sound, did not get off the ground much higher than Ader's early flying machine did.

The iPod revolution brought in a new generation of more ambulant and carefree listeners, perhaps less demanding in tonal fidelity, but positively hipper and more accepting of those once-pesky earphones and headphones than their lonely and aging uncles. This, coupled with the advent of headphones designed to be more compatible with binaural audio, opened the door for a revival

of dummy head recordings. Still there was the problem of making binaural audio (which, by necessity, is a bit tonally-colored by the particular interaction of the sound with the head and ears of the dummy before it reaches the microphones) sound good when played back over loudspeakers. This problem has been solved by filtering techniques (which go by such fancy names as “diffuse field equalization”) that allow dummy head recordings to meet the highest audiophile standards of tonal fidelity and transparency when played through loudspeakers.

There remained one nagging problem to solve before binaural audio could rightfully be considered a candidate for the ultimate audiophile recording technique, and that is to have binaural recordings sound truly 3D when played through a pair of loudspeakers. While a processing technique, called crosstalk cancellation (XTC), which has been known for years, could do just that, it caused so much coloration to the sound that even a hearing-challenged, MP3-accepting, anti-audiophile would have found the tonal fidelity highly objectionable. Recent research in 3D audio led to XTC filters that not only bring out the thrilling 3D realism of binaural recordings through a pair of loudspeakers far better than most headphones can, but can do so with utmost tonal transparency, i.e. without affecting the tonal quality of the sound. The resulting nascent technology, baptized BACCH 3D Sound (in loving reference to another audiophile ancestor), is presently finding its way to discerning listeners hip enough not to sneer at 64-bit digital processing in their audio systems.

The state-of-the-art hardware and advanced high-definition recording techniques used by Dr. Chesky and his team on this album yield a truly spectacular demo of binaural audio. On good headphones the sound is palpably 3D for most listeners, except for those whose heads and outer ears differ markedly, and perhaps proudly, from those of the dummy used to record the album. Incidentally, that dummy, who served as Dr. Chesky’s faithful assistant on this album, is an affable and patient polymer-based fellow, we call Lars, who hails from the B&K factory in Denmark, has superb hearing, and whose spooked aviator head adorns the Chesky Records Binaural+ Series logo. (We urge RCA-record-collecting audiophiles to resist referring to the series as “His Master’s Head.”) Played through standard loudspeakers, these recordings would sound at least as good as the audiophile recordings that the Chesky label is known for. When played on a loudspeaker system equipped with BACCH 3D Sound technology, the binaural audio (imaging, ambiance and all) comes through in all its 3D glory—an experience approaching that dreamed of by our earliest audiophile ancestors: the proverbial “being there” transportation, with an ethereal sensation of being lifted about eight inches off the ground.

—Professor Edgar Choueiri
Director, 3D Audio and Applied Acoustics Laboratory, Princeton University



THE CAST

The Manhattan Chamber Ensemble

West New York Spiritual Choir

Wycliffe Gordon & Friends

Choir of the Church of the Blessed Sacrament

The Brooklyn Funk Band

Dave Eggar, *Cello*

Amber Rubarth, *vocalist*

Todd Turkishher, *drum solo*

The West Side Jazz Quartet *featuring*
Anne Drummond, *Flute*

Gregory D'Agostino, *Organist*

The Widgets, *Rock Band*

Armand Hirsch Trio
Armand Hirsch, *Guitar*
Jeff Picker, *Bass*
Jake Goldbas, *Drums*

Edgar the Barber

Dr. Chesky, *Djun Djun (African Drum) and very improper,
quite un-grammatical failed attempts at speaking the English Language!!!*



Sukoon Arabic Music Ensemble

Hadi Eldebek, *Oud*

Tariq Abboushi, *Buzuq*

Ramzi Edlibi, *Riqq*

Nick Chbat, *Tar*

Mohammad Eldebek, *Derbakkeh*

Guest artists with Sukoon:

Amir Elsaffar, *Arabic Santour and Trumpet*

Sami Shumays, *Violin*



ARABIC MUSICAL INSTRUMENTS DESCRIPTIONS:

The oud is the quintessential classical Arabic music instrument. It is the predecessor of the lute and hence of the guitar. The word oud means wood in Arabic. The oud and its close relatives have been played for thousands of years in the middle east region. Its current design has been around since about 1000 years ago; it is pear-shaped, has short neck, eleven strings and no frets allowing for microtonal intervals used in Arabic maqam music. The oud plectrum is typically made of wood or eagle feather, but more recently plastic.

The buzuq is a long-necked fretted lute type. It has 3 metallic double strings. It has a smaller body than the oud and its frets are tied to the neck and hence can be moved allowing for microtonal intervals depending on the maqam being played. The buzuq is a relative of the Greek buzuki and the Turkish saz, and it is associated with the music of Lebanon and Syria.

The santur is a 96-string, trapezoidal hammered-dulcimer from Iraq. An invention of the Babylonians, the santur has been played continuously in Iraq throughout the centuries, and occupies an important role in Iraqi maqam music, as well in Persian and Indian classical music. It is the predecessor of the European cimbalom and the American hammered dulcimer, and is the structural ancestor to the modern-day piano.

The trumpet is commonly found in weddings and festive occasions in the Middle East where it is heard playing folk melodies, often with a brash, piercing sound and accompanied by drums and other brass instruments. Only very recently has the trumpet been introduced to the Arabic ensemble, with a softer, darker sound more appropriate to this type of music.



Produced by David Chesky
Executive Producer: Norman Chesky
Recorded, Edited, and Mastered by Nicholas Prout
Assistant Engineer & Session Coordinator: Alex Sterling
Graphic Design: Jeff Wong
Project Coordinator: Lisa Hershfield

Recorded at the Hirsch Center, Brooklyn, New York and St. Paul's Church, New York
February–March 2012

This was recorded with the Brüel & Kjær 4100-D Binaural head (Lars), Crystal Cable into
the MSB 384/32 Analog to Digital Converter

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Engineering Physics Program and Princeton's 3D Audio and Applied Acoustics (3D3A) Lab,
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his work and support

Tracks 6, 14, and 15 were recorded in St. Paul's Cathedral. The background noise you are hearing is the transformers of the lights in the cathedral.

Tracks 4, 7, 10, 13, 16 written by David Chesky, Chesky Productions Inc., ASCAP
Tracks 3, 18 written by Lenny White, Mark Sherman, Jamey Haddad, Chesky Productions Inc., ASCAP
Track 9 improvised drum solo by Todd Turkisher, Chesky Productions Inc., ASCAP
Track 2 written by Ballard MacDonald, James F. Hanely, ASCAP
Track 1 written by A.P. Carter, ASCAP
Track 5 written by Ibrahim el-Aryan, ASCAP
Track 12 composer: Unknown, late 19th century
Track 17 written by Harry Dixon Loes

